

SAPC - 4084  
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23 February 1956

**MEMORANDUM FOR: Project Director**

**SUBJECT: Anti-Radar Coatings**

1. The Water-Air Division of TSS has been interested in the field of anti-radar coatings for quite some time and has been monitoring (via the Applied Physics Division) progress being made by the US Navy and Air Force in this field. The following is a brief resume of the material found in the TSS file and information obtained through interviews at the Office of Naval Research and the Naval Research Laboratory.

a. The work done during World War II on anti-radar coatings did not produce any materials suitable for AGMATONE use. All developments resulted in thick, heavy, low-efficiency absorbers not suited for high speed aircraft. Most applications were "one-time" and had to be reapplied before each mission.

b. The work done since World War II in this country has centered at N.R.L. [redacted] heads the project staff there. According to him, the present state of the art in the US enables a large, slow flying craft to be coated with a relatively thin (1 mm) layer resulting in 90% absorption in the X and S bands. The weight penalty would be approximately 500 pounds for minimum coverage on a C-47 type aircraft. One application would last for "several" missions. [redacted] did not feel that any US Navy development was applicable to light weight fighter use.

c. Work being done for the Air Force (WADC) has been centered mostly in monitoring foreign developments. As the result of a tour of European development facilities, Col. Munsie has indicated a considerable advance in the state of the art in Germany, Belgium and the Netherlands. In general, these countries have produced quite thin coatings (0.2 mm) with at least 90% energy absorption in the X and S bands. The coatings can be applied by spraying and are reasonably durable. At the present time Rome AFB is flight testing the German technique. Arrangements are being made to obtain the results of these tests and to visit the Rome Base.

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2. As a result of these inquiries, a number of conclusions have been reached:

a. The present state of the art provides for adequate coatings for X and S band protection for all but extreme light weight, high speed fighter aircraft on a multiple mission basis with a minimum weight penalty of a few hundred pounds.

b. While modern search radar has been developed in the X and S band spectrum, most foreign equipment in the field employs the lower frequency P and L bands. Since the thickness of present coatings is inversely proportional to the absorbed frequencies, P and L band protection is not practical for airborne application.



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